

### REMARKS

This is in response to the Office Action of August 11, 2008. Claim 1 is amended to recite the features of claims 6 and 7, claims 6 and 7 are accordingly cancelled, without prejudice. No new matter is introduced by this Amendment. Claims 1, 3-5, and 8-13 remain pending in the application.

#### Rejection over Sun, Deeba, Yang, and Yasui

Claims 1 and 3-13 were rejected under 35 U.S.C. § 10392(a) as being unpatentable over US 6,826,902 B2 to Sun et al. ("Sun") in view of US 6,105,365 ("Deeba"), US 2004/0261397 A1 ("Yang"), and US 6,427,438 B1 ("Yasui"). Office Action, pages 2-8. The rejection is respectfully traversed.

The presently claimed method requires, among other things, "calculating a NO<sub>x</sub> discharging amount in [a] NO<sub>x</sub> occlusion catalyst according to the following equation:

$$\text{NO}_x \text{ discharging amount} = \int (\text{reducing agent concentration at catalyst inlet} \times \text{reducing agent utilization rate} - 0.5 \times \text{oxygen concentration in catalyst inlet}) \times \text{exhaust gas flow rate},$$

wherein said reducing agent utilization rate is set on the basis of exhaust gas temperature  $y$  and exhaust gas flow velocity  $z$ , and at the same time the characteristics of the reducing agent utilization rate are stored in a reducing agent utilization rate setting map."

The Examiner admits, on page 6 of the Office Action, that the Sun reference fails to suggest "that the reducing agent utilization rate is further set on the basis of exhaust gas temperature and exhaust gas flow velocity." The Examiner contends that Yang teaches that it is known "to estimate an NO<sub>x</sub> reduced or desorption rate based on the parameters such as engine or exhaust gas temperature and exhaust gas space velocity." The Examiner goes on to say that it is obvious "to have utilized the teaching by Yang in the modified method of Sun et al. [that is, Sun v. Deeba v. Yasui] since the use thereof would have been routinely practiced by those with ordinary skill in the art."

Legal standard for obviousness rejections

The guidelines that must be used by an Examiner in determining obviousness are set forth in MPEP 2143. **First**, the Examiner must take into account the factual inquiries set forth in *Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), which provides the controlling framework for an obviousness analysis. The four *Graham* factors are: determining the scope and content of the prior art; ascertaining the differences between the prior art and the claims that are at issue; resolving the level of ordinary skill in the pertinent art; and evaluating any evidence of secondary considerations (e.g., commercial success, unexpected results). 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). **Secondly**, the Examiner has to provide some rationale for determining obviousness. MPEP 2143 sets forth some rationales that were set established in the recent decision of *KSR International Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007).

In the present case, the Examiner has not appropriately taken into account all four *Graham* factors. Moreover, the Examiner's rationale in combining the cited references is improper.

The teaching, suggestion, motivation ("TSM") test is a valid test for obviousness, although it is one which cannot be too rigidly applied. See *KSR International Co. v Teleflex Inc.*, 82 USPQ2d 1385, 1395 (U.S. 2007). While the courts have adopted a more flexible teaching/suggestion/motivation test in connection with the obviousness standard based on the *KSR v. Teleflex* case – which involved a mechanical device in a relatively predictable technological area – it remains true that, despite this altered standard, the courts recognize that inventors face additional barriers in relatively unpredictable technological areas (including the chemical arts), as noted in *Takeda Chemical Industries, Ltd. v. Alphapharm Pty., Ltd.*, 83 USPQ2d 1169 (Fed. Cir. 2007) (since TSM test can provide helpful insight if it is not applied as rigid and mandatory formula, and since, in cases involving new chemical compounds, it remains necessary to identify some reason that would have led a chemist to modify a known compound, in a particular manner, in order to establish *prima facie* obviousness of a new compound) (no identification of a predictable solution where the prior art discloses a broad selection of compounds).

The same rationale was set forth in *Eisai Co. Ltd. v. Dr. Reddy's Laboratories Ltd.*, 87 USPQ2d 1452 (Fed. Cir. 2008), wherein it was determined that a *prima facie* case of obviousness for a chemical compound generally begins with identification of “lead” compound that is modified to achieve the claimed compound. However, the plaintiffs were properly granted summary judgment that it would not have been obvious to modify the lead compound (lansoprazole) to obtain the claimed compound (rabeprazole) having anti-ulcerative activity.

Moreover, it is well established that combining known prior art elements is not sufficient to render the claimed invention obvious if the results would not have been predictable to one of ordinary skill in the art. *United States v. Adams*, 383 U.S. 39, 51-52, 148 USPQ 479, 483-84 (1966); *see also* MPEP 2143.

The rationale for a rejection should be made explicit, *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). The Examiner must interpret the reference as a whole and cannot pick and choose only those selective portions of the reference which support the Examiner’s position. *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988) (“One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to depreciate the claimed invention.”).

#### Deficiencies in rejection

As noted above, the Examiner acknowledges that the Sun reference fails to suggest “that the reducing agent utilization rate is further set on the basis of exhaust gas temperature and exhaust gas flow velocity.” The Examiner contends that it is obvious to modify the Sun v. Deeba v. Yasui technology to incorporate a feature allegedly found in Yang “since the use thereof would have been routinely practiced by those with ordinary skill in the art.” What the Examiner appears to be saying in this analysis is that the present invention is *prima facie* obvious because a person of ordinary skill in the art *could* carry it out. “The mere fact that a reference *could be* modified to produce the patented invention would not make the modification obvious unless it is suggested by the prior art.” *Libbey-Owens Ford Co. v. BOC Group Inc.*, 655 F. Supp. 897, 906, 4 USPQ2d 1097, 1103 (D.N.J. 1987) (emphasis supplied).

“Something in the prior art as a whole must suggest the *desirability* ... of making the combination.” *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051-52, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988) (emphasis supplied). “The mere combination of prior art references does not make an invention obvious unless something in the prior art suggests or reasonably implies an *advantage to be derived* from uniting their teachings.” *Creative Pioneer Products Corp. v. K-Mart Corp.*, 5 USPQ2d 1841, 1844 (S.D. Tex 1986) (emphasis supplied). Clearly, the Examiner has not met the burden imposed by the case law to support his rejection of claim 1 in its present form.

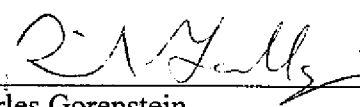
It is respectfully submitted that the rejection of record is not sustainable with respect to claims 1, 3-5, and 8-13 currently before the Examiner.

Contact information

In view of the above amendments and remarks, Applicants believe that the present application is in condition for allowance, which action is earnestly solicited. If there are any questions, please contact Richard Gallagher (Reg. No. 28,781) at (703) 205-8008.

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Respectfully submitted,

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